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# MCB-50 User Manual and Menu Map

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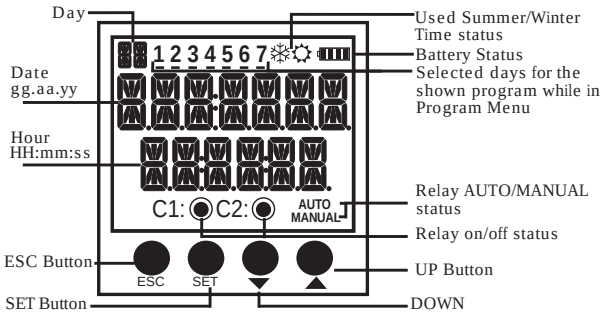
CE

A5303 / Rev.4

MCB-50, is an electronic timer which has a real time clock module inside It is designed for controlling the devices which are connected to its contacts according to the time periods which are programmed by the user.




ESC Button :It is used to switch between monitoring menus. In the programming mode, it is used to cancel a parameter change or to return to the previous menu.

SET Button :It is used to switch between monitoring menus. When it is pressed for 3 seconds, programming mode is entered. In the programming mode, it is used to apply a parameter change or to enter to a menu.

UP DOWN Buttons:In the monitoring menu, it is used to switch between programs to show their activity in a day. When the DOWN button is pressed for 3 seconds, C1 relay goes into manual mode and when the UP button is pressed for 3 seconds, C2 relay goes into manual mode. In the programming menu; it is used to browse between menus, to select parameters and to adjust values with digits.



Precautions for Installation and Safe Use

If below precautions are not properly observed and carried out, it may result in cases with injury or death.

- Disconnect power before working on the device.
- When device is connected to the network, do not remove the front panel.
- Do not clean the device with solvent or similar items. Only clean with dry cloth.
- Verify correct terminal connections before energizing the device.
- Install the device on the electrical panel.
- Contact your authorized reseller in case problems occur with your device.

No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences rising out of the use of this material.

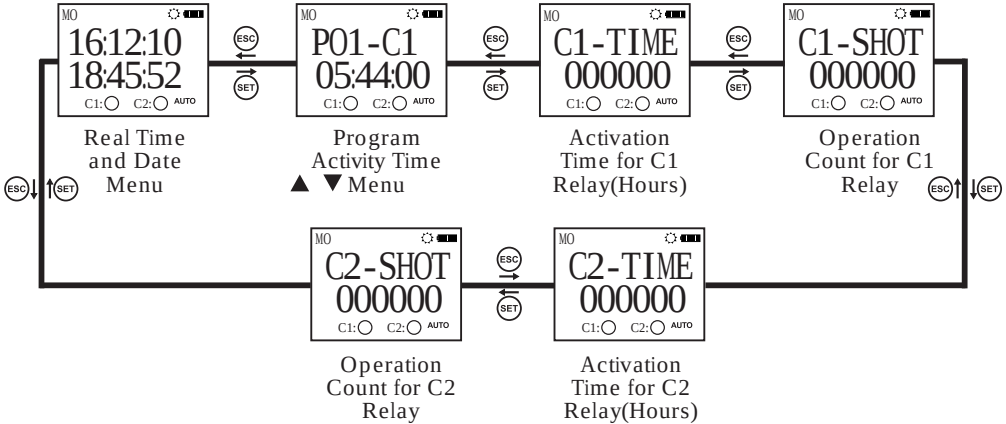
- The output loads connected to the relays do not function if auxiliary supply is absent. Even if the relay status is monitored as "on"(C1 ◉ and/or C2 ◉), auxiliary supply is a must for the operation.
- There are two reserves in the device. Programmed data is protected by these reserves against power outages.
- Battery shelf life is 5 years.
- Reserve battery should only be changed by the authorized service.

MANUAL MODE :

In order to use the relay outputs manually, MCB-50 has to be in the monitoring mode. The DOWN button is used to switch the C1 relay to manual mode and the UP button is used to switch the C2 relay to manual mode. When the UP or DOWN button is pressed for 3 seconds, "MANUAL" indication appears on the screen. If this is done while the relay C1 or C2 is activated, that relay will be deactivated. If it is done while the relay C1 or C2 is deactivated, no switching will occur. After the relay C1 or C2 is in the manual mode; when the DOWN button is pressed again for 3 seconds, C1 relay will exit the manual mode and when the UP button is pressed again for 3 seconds, C2 relay will exit the manual mode. The relay will stay activated or deactivated according to the program flow. When both of the the relays are in manual mode, "AUTO" indication will dissappear from the screen.

MONITORING MENU :

SET and ESC buttons are used to switch between menus in the monitoring mode. If the device is left unattended for 60 seconds in any menu other than the real time and date, it returns to the real time and date screen.




Program activity time menu shows the programs, which are stored on the device, in order according to program activity time. The active or finished programs can be shown with UP or DOWN buttons. The programs with a ✱ sign next to them are the programs which are still active.

MCB 50 Menu Settings

⚠ If the "SAVE" option doesn't get accepted when returning to the monitoring menu, the changes which are made in the MCB-50 menus will be discarded. This isn't the case for "TIME SETING" menu. The changes which are done in "TIME SETING" menu are applied immediately. When none of the keys are pressed in the programming menu, the device returns to monitoring menu and any changes which were made will be discarded. Refer to the menu map when configuring the MCB-50 menus.



● Program Menu:

There are 32 programs available to program between P01 and P32. The available settings for programs are relay selection, activation time, activation day, deactivation time, time conflict query and save. In addition to these, an appointed program has two additional settings as "EDIT" and "DELETE". If "EDIT" is selected for an appointed program, the existing settings of that program is shown and can be reconfigured. If "DELETE" is selected for an appointed program, that program will be deleted permanently.

Output Selection ( PXX-OUT ):

MCB-50 has 2 relay outputs as C1 and C2. The user must choose between C1 and C2 as the relay output which he want to control.

Activation Time Setting ( PXX-ON ):

The user can use time paromeler for the application

Time Parameter ( TIME ):

This parameter is the adjustment of the relay according to the real time clock. If this parameter is selected, the user can enter an activation time between 00:00:00 (HH:mm:ss) and 23:59:59.

Selection of Activation Days: The day/days in which the program will be activated is adjusted in this menu. If “ALL DAYS” “YES” is selected, the program will be activated for all days of the week. If “NO” is selected, the user will be asked to select “YES” or “NO” for the all of the days starting from Monday in which the program will be active. There are numbers 1 to 7 on the top section of the screen.These numbers stand for the days of the week. “1” indicates Monday. These numbers also help to indicate the days in which a program will be active without entering that appointed programs menu.

Deactivation Time Setting ( PXX-OFF ): The user can use time parameter for the application. This parameter is the same as in the relay activation setting The deactivation time shouldn’t be earlier than the activation setting. For the cases other than this one in which the deactivation time is set earlier than the activation time, the deactivation time is set for the next day.

Time Conflict Query: The device checks for any time conflicts between the existing programs and the newly entered program. If there is a time conflict, it warns the user with the “CROSS PXX” warning. If there isn’t a time conflict, “PROGRAM VALID” is shown on the screen. These warnings will be shown for 3 seconds. If a button is pressed before 3 seconds run out while a warning is displayed, the save menu is entered.

Save: In this menu, the user is asked to approve the changed program or not. If the program is not confirmed by the user, it stays unchanged. If the program is confirmed by the user, the changes are kept on the memory but are not in effect. When the “SAVE” query is confirmed by the user while returning to the monitoring menu, the changes are saved to the memory. See application example 1 and 2

● Merge Function:

The merge function does a logical AND operation. In the common timeframe of the merged programs, the corresponding relay becomes active. This function can be used if at least two programs are assigned for the same relay output. There are 2 sub-menus as “AND-1” and “AND-2”. There is a “DISABL” parameter in these menus. When the user selects at least 2 programs, “FINISH” parameter becomes accessible in this menu instead of this parameter. The user browses between the parameters with UP or DOWN buttons and selects the programs which he wants to merge with SET button. According to the selection of the output of the first selected program, the programs for the other ouput are excluded from the selectable programs



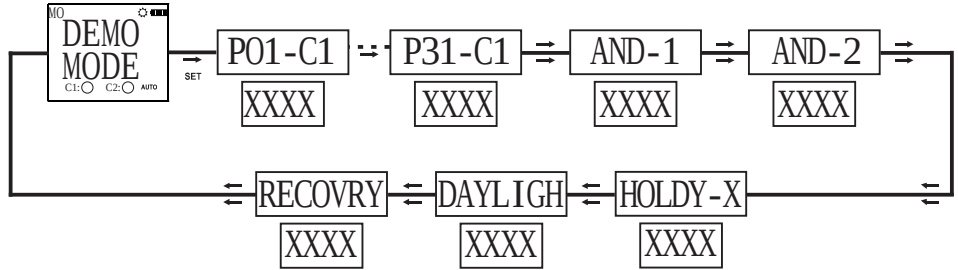
for the users convenience to easily select the programs with the same output. To finish the selection, “FINISH” parameter has to be selected. After this process, “AND-X” sub-menu will be set and shown as occupied. To disable the merge function, the user must select the “DISABL” parameter. After this process, “AND-X” sub-menu will be set and shown as unoccupied. When the “SAVE” query is confirmed by the user while returning to the monitoring menu, the changes are saved to the memory.

● Relay Time Menu:

The operation counts and activation times of the C1 and C2 relays are reset in this menu. The user can reset any of the parameter/parameters of the C1 relay. There are 4 sub-menus as “C1-TIME”, “C1- SHOT”, “C2-TIME” and “C2-TIME”. When the “SAVE” query is confirmed by the user while returning to the monitoring menu, the changes are saved to the memory.

● Settings Observation Menu:

The user can observe the sub-menu settings with 3 second intervals in this menu. The activation/deactivation time settings, merge function settings, holiday lock settings, summer/winter time setting, and the parameter to which the exit from the manual mode is set can be displayed. UP, DOWN and ESC buttons enables the interval between screens to extend. The SET button provides a faster browsing between the sub-menus.




xxxx is a symbolic representation. The set parameters are shown here.

● Regional Settings Menu:
Language and daylight saving time settings can be done in this menu. The changes which are made in this menu are saved to the memory when the “SAVE” query is confirmed by the user while returning to the monitoring menu.

Language Menu: There are English and Turkish parameters. The user enters the language menu with SET button, chooses a language with UP or DOWN buttons and confirms this language with the SET button. If Turkish is selected, the change is applied immediately. But if the “SAVE” query isn’t confimed by the user while returning to the monitoring menu, the language doesn't change.

Daylight Savings Time (DST) Menu: DST usage is set in this menu. There are 4 parameters.

Europe Parameter: According to the European DST settings; the DST starts when the local time is about to reach 03:00:00 and the clocks are turned 1 hour forward to 04:00:00 on the last Sunday of March. The DST ends when the local time is about to reach 02:00:00 and the clocks are turned 1 hour backward to 01:00:00 on the last Sunday of October.

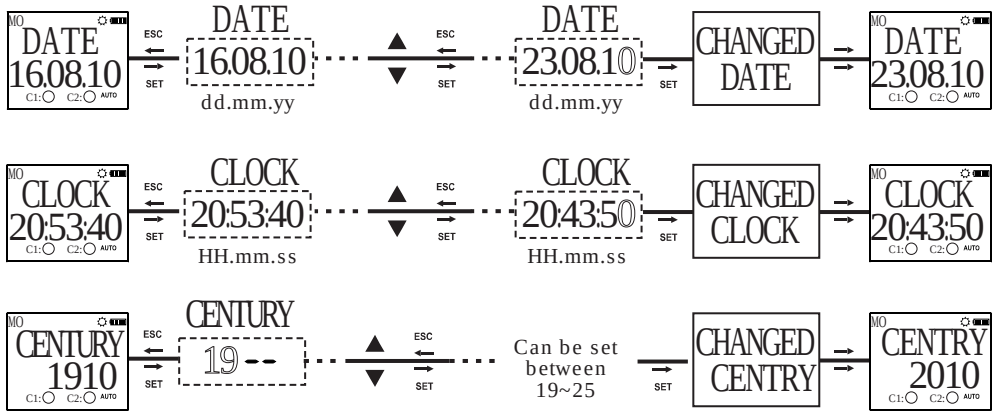
USA Parameter: According to the USA DST settings; the DST starts when the local time is about to reach 02:00:00 and the clocks are turned 1 hour forward to 03:00:00 on the second Sunday of March. The DST ends when the local time is about to reach 02:00:00 and the clocks are turned 1 hour backward to 01:00:00 on the first Sunday of October.

Custom Parameter (CUSTOM): By choosing this parameter, the user first selects the month, the place of the day in that selected month (Ex.: The selection of the “second” parameter in the “second Saturday of March”. It is selected as the week of the month.), the day, the time on which it will be turned forward for DST start. The user then selects the month, the place of the day in that selected month (Ex.: The selection of the “second” parameter in the “second Saturday of September”. It is selected as the week of the month.), the day, the time on which it will be turned backward for DST finish.

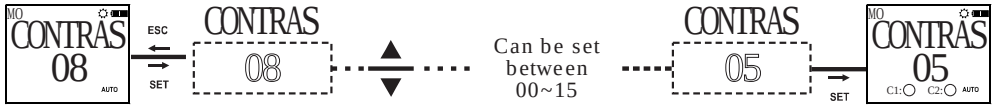


● Time Settings Menu:
The time settings are done in this menu. There are 3 sub-menus. The changes which are meade in this menu are immediately applied.

Date Menu(DATE): It is displayed as dd.mm.yy.
Clock Menu(CLOCK): It is displayed as HH.mm.ss.
Century Menu(CENTURY): The first two digits of the year which you’re in is set in this menu. It is displayed as yyyy. The last two digits come from the date setting. When the user wishes to set this value it changes to yy--. It can be set between 19 and 25.



● Display Settings Menu:
The contrast is adjusted between 00 an 15 in this menu.




● Holiday Lock Menu:
In this menu, the set programs are deactivated for a time period which is entered by the user. 4 different holiday times can be entered by the user. The user must enter and approve the start date(as dd:mm), the start time(as HH:mm), the finish date(as dd:mm) and the finish time(as HH:mm) of a holiday. After the approval, "HOLDAY X-FULL" will appear on the screen. For an occupied holiday setting, "EDIT" ve "DELETE" options are available. If "EDIT" is selected for a holiday lock, the existing settings for that holiday lock can be observed and edited. If "DELETE" is selected for a holiday lock, the settings for that holiday lock is deleted. The changes are saved to the memory when the "SAVE" query is confirmed by the user while returning to the monitoring menu. See Program Example 3.

● Manual Mode Menu: The setting for leaving the manual mode after the device is set in manual mode is done in this menu. There are 3 parameters. The user can leave the manual mode with the DOWN button regardless of what parameter he chooses in this menu.

Disabled Parameter(DISABL): When this parameter is selected; after the manual mode is enabled with the UP/DOWN buttons for any of the outputs, it must be disabled again with the UP/DOWN buttons.

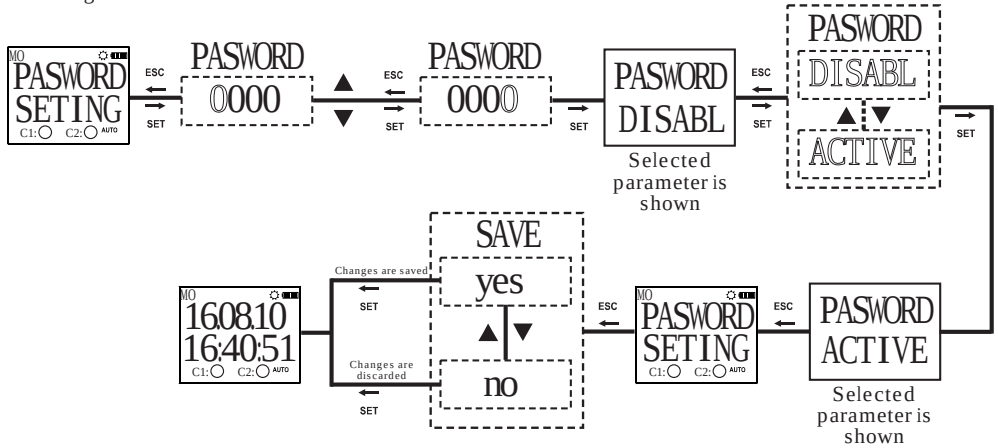
Program Parameter(NEXT-P): When this parameter is selected; after the relay/relays is/are activated or deactivated by a program in the program flow, the manual mode for the relay/relays will be disabled.

Timer Parameter(TIMER): When this parameter is selected; the user will be prompted to enter the time as HH:mm. The device will start to count back from the entered time when the manual mode is enabled for the relay/relays. If the time is entered as 23:59, the manual mode will be disabled after 23 hours and 59 minutes.If the time is entered as 00:01, the manual mode will be disabled after 1 minute. There is a special case if the time is entered as 00:00. With this entered time, the manual mode will be disabled after 1 minute too.

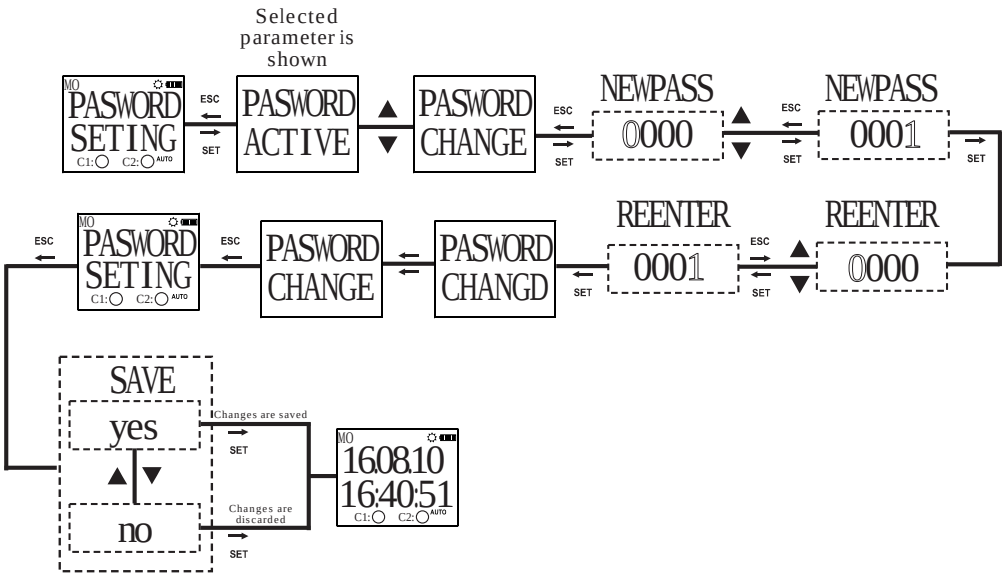


● Password Settings Menu:
The activation and changing of a password is done in this menu. The factory default value for the password is "0000". The 4 digit password is prompted before entering this menu. If the password is activated, it isn't prompted again before entering this menu since the password was entered before entering the main programming menu.

Password Activation Menu: The password is activated or deactivated in this menu. It is activated as following:



Password Change Menu: The password is changed in this menu. It is done as following:






● Factory Setting Menu:
The device is returned to its factory settings in this menu. The 4 digit password is prompted before entering this menu. If the password is activated, it isn't prompted again before entering this menu since the password was entered before entering the main programming menu. The device returns to its factory settings when the "SAVE" query is confirmed by the user while returning to the monitoring menu. Time settings, relay operation count and relay operation time doesn't change.

● Version Information Menu:
The software and hardware versions of the device is shown in this menu.

● Exit from Main Programming Menu:
This menu is used to exit from the main programming menu. The ESC button can be used for this, too. If any changes are committed in the menus while in the main programming menu, an approval promt is shown. If there aren't any changes, the monitoring menu is shown directly.

Factory Settings:

Program
P01....P32: FREE

Merge Function
AND-1: FREE
AND-2: FREE

Password
PASSWORD:0000
PASSWORD STATUS:INACTIVE

Regional Settings
LANGUAGE: ENGLISH
DAYLIGHT SAVING: EUROPEAN

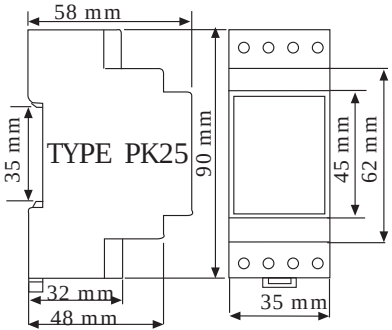
Display Settings
CONTRAST:08

Holiday Lock
HOLIDAY-1: FREE
HOLIDAY-2: FREE
HOLIDAY-3: FREE
HOLIDAY-4: FREE

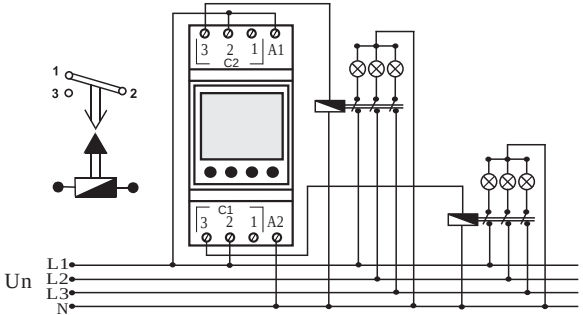
Manual Mode
RECOVRY : DISABLE

Activation Time
C1 TIME : 0
C1 SHOT : 0
C2 TIME : 0
C2 SHOT : 0

DIMENSIONS




CONNECTION DIAGRAM




Note: The contact resistance at ohmic load ( eg: Incandescent bulb, Resistance devices ) is 16A. It is recommended to use a contactor if the inductive load (eg: AC motor, fluorescent,etc.) or capacitive load (eg: Led Drivers, UPS, Fluorescent ( Electronic Ballast), etc.) switch. Otherwise adhesion may occur in relay contacts.

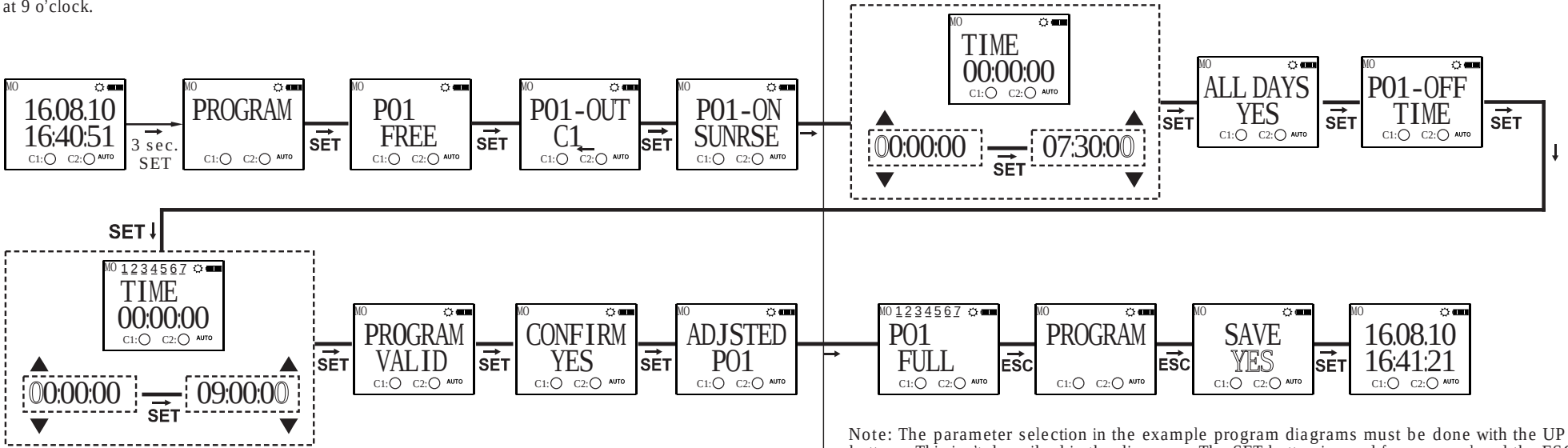


TECHNICAL FEATURES

| Electrical Features | |
|---|---|
| Operating Voltage ($U_n$) | Please look at the side label |
| Output Contact | 2 C/O , 16 A / 4000 VA |
| Refresh Time | 1 sec. |
| Power Consumption | < 5 VA |
| Accuracy | ≤ 1 sec./Day |
| Screen Size | 1,3" LCD |
| Program Number | 32 |
| Battery Shelf Life | 5 Years |
| **Mechanical Features** | |
| Equipment Protection Class | Class II (⧈) |
| Ambient Temperature | -10°C ... +55°C |
| Protection Class | IP20 |
| Installation | Rail Mount |
| Dimensions | PK25 |
| Weight | 0,2 kg |
| Quantity in 1 Package | 5 pcs |

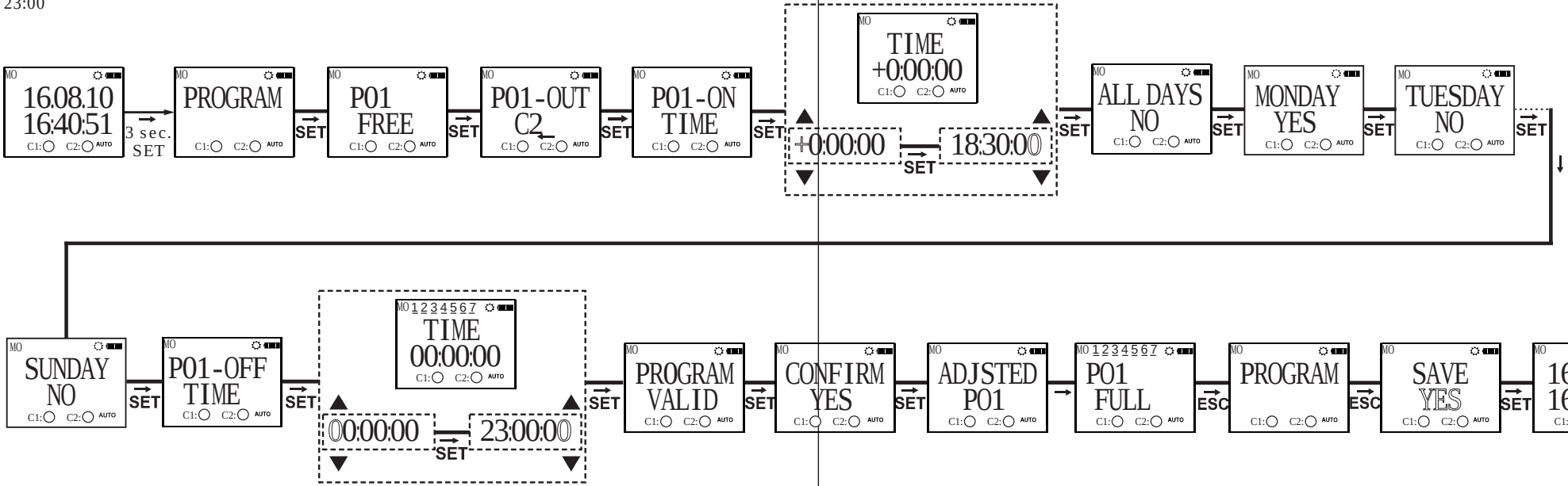
Due to the structure of LCD screens, the liquid inside them starts to freeze below its operating temperature. This causes the screen to respond slower or not respond at all. Device's other functions are not affected from this and it opens/closes its relays as programmed. After the device temperature rises back to the operating range, LCD screen starts to work normally.

APPLICATION EXAMPLE 1: On every weekday, the C1 relay will be activated at 07:30 and be deactivated at 9 o'clock.

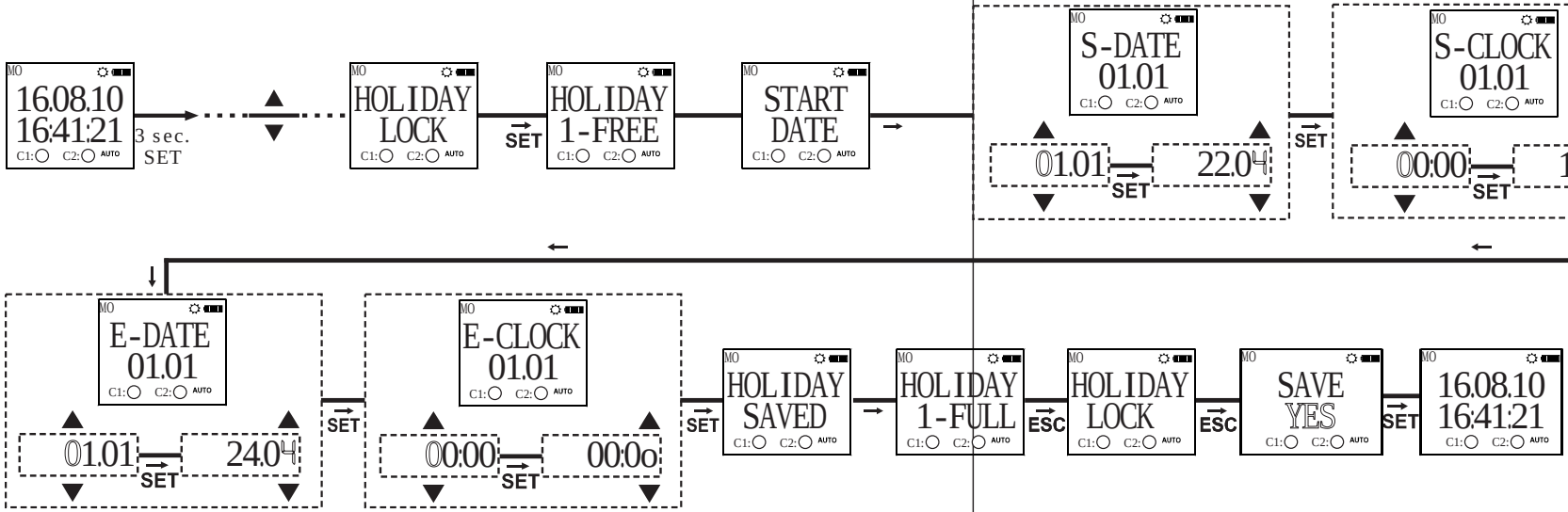



Note: The parameter selection in the example program diagrams must be done with the UP or DOWN buttons. This isn't described in the diagrams. The SET button is used for approval and the ESC button is used for returning to the previous selection. The diagrams are for P01 and the programming is done the same way for the other programs.

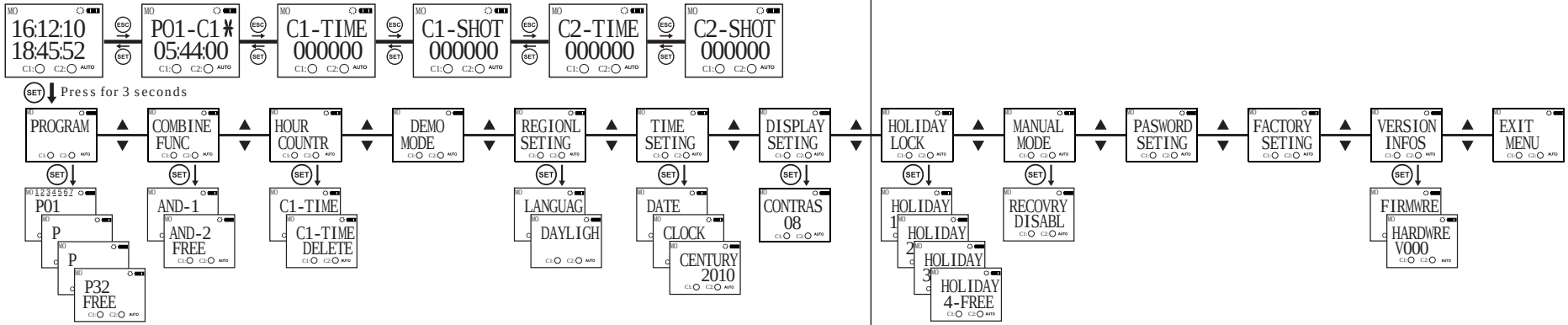
APPLICATION EXAMPLE 2: C2 relay will be activated every monday at 18:30 and will be deactivated at 23:00



APPLICATION EXAMPLE 3: All programs will be deactivated between 22nd April 18:30 and 24th April 00:00.



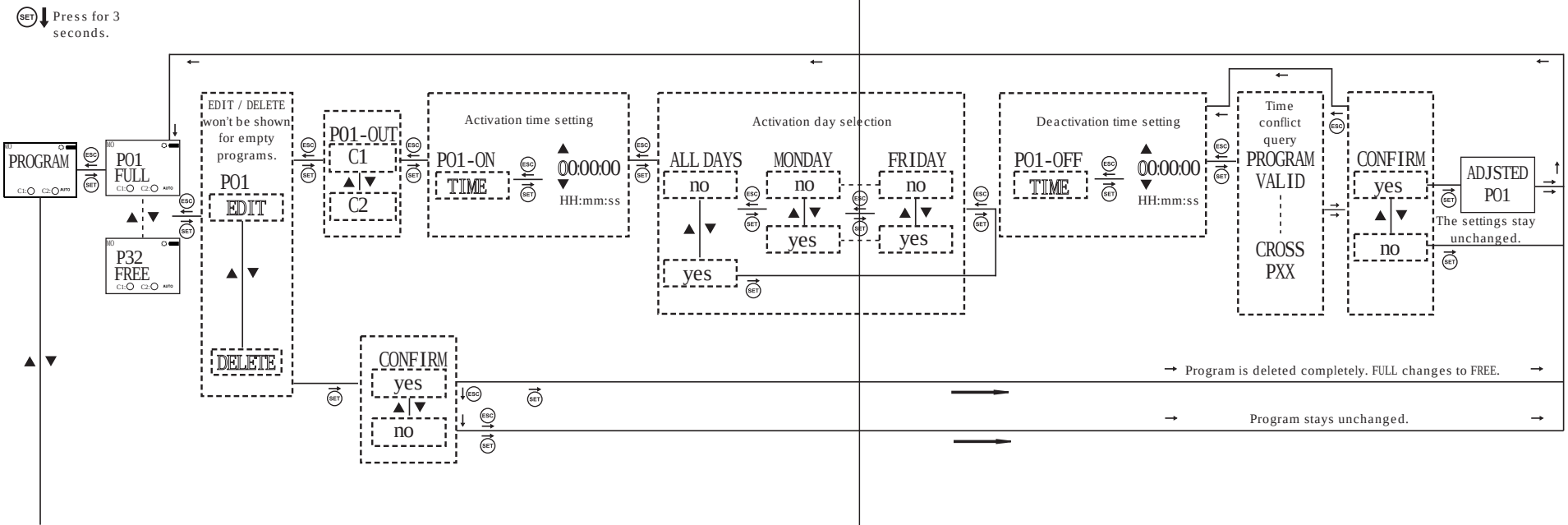
MENU MAP

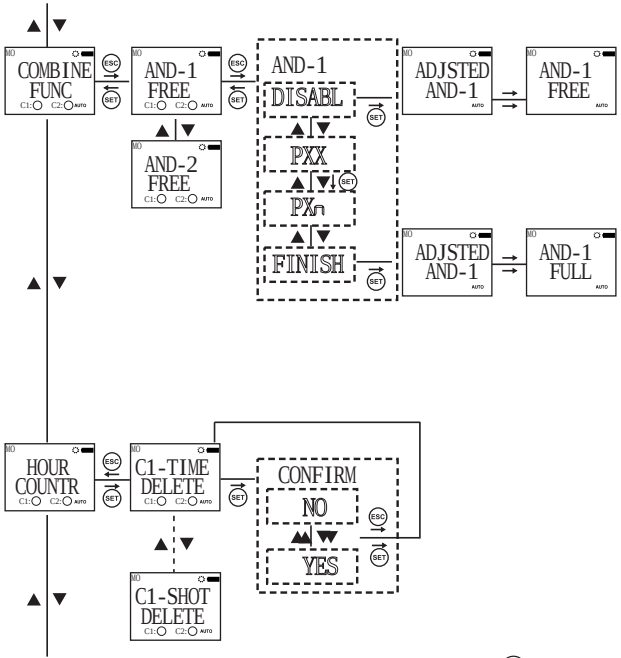



If the “SAVE” query is not confirmed by the user while returning to the monitoring menu, the changes which are committed in the menus will be discarded(This doesn’t apply to the Time Settings Menu).

* The device shows the entered programs in the order of their program flow in the menu display. The programs can be browsed with the UP or DOWN buttons. The programs with a ✱ symbol next to them are the programs which didn’t run yet.

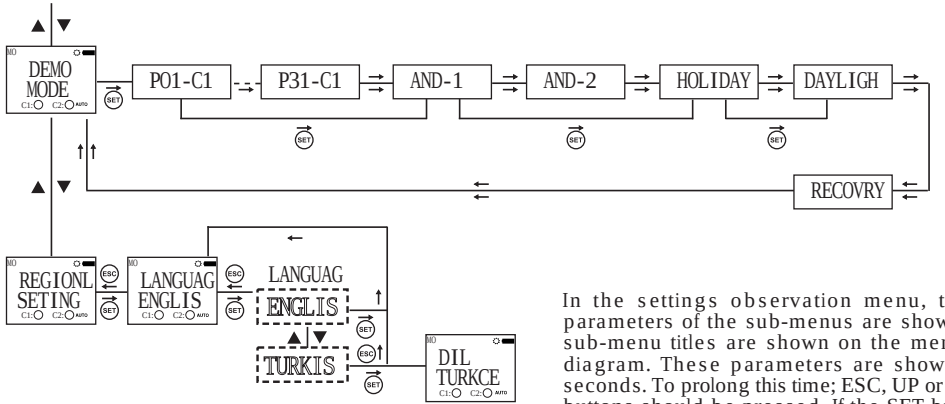
(Monitoring Menu and Main Programming Menu screens are shown).


Press for 3 seconds.
PROGRAM
P01 FULL
P32 FREE
EDIT / DELETE won't be shown for empty programs.
P01
EDIT
DELETE
P01-OUT
C1
C2
CONFIRM
yes
no
Activation time setting
P01-ON
TIME
00:00:00
HH:mm:ss
Activation day selection
ALL DAYS
MONDAY
FRIDAY
no
yes
Deactivation time setting
P01-OFF
TIME
00:00:00
HH:mm:ss
Time conflict query
PROGRAM VALID
CROSS PXX
CONFIRM
yes
no
ADJSTED P01
The settings stay unchanged.
Program is deleted completely. FULL changes to FREE.
Program stays unchanged.

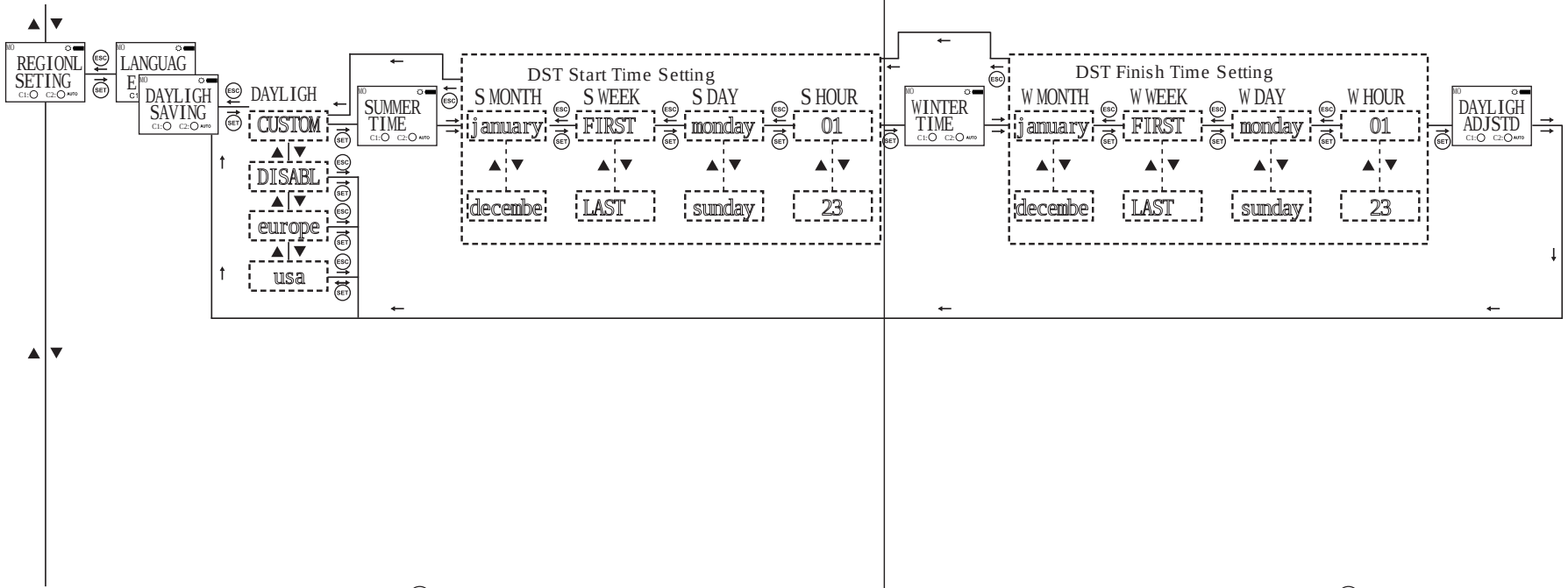


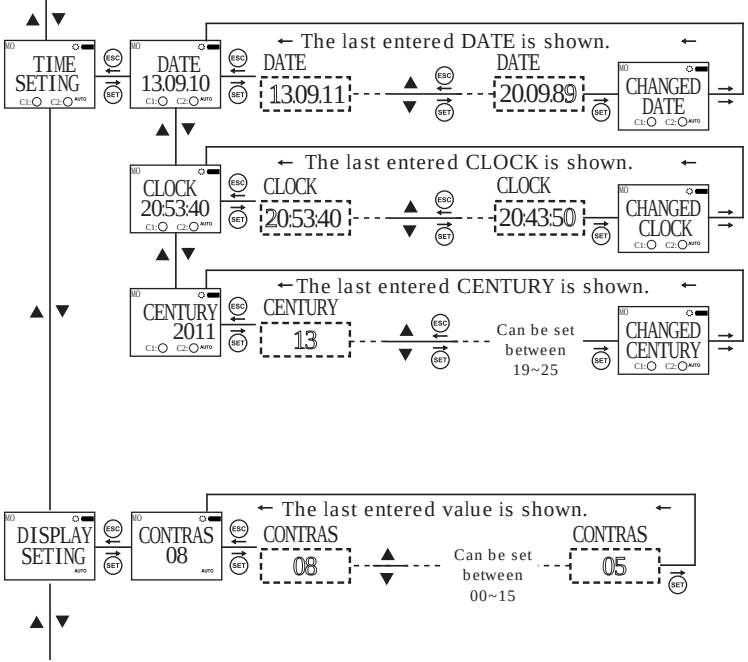

The merge function does a logical AND operation. In the common timeframe of the merged programs, the corresponding relay becomes active. This function can be used if at least two programs are assigned for the same relay output. The user can browse between the parameters with UP or DOWN buttons. There is a "DISABL" parameter in these menus. When the user selects at least 2 programs, "FINISH" parameter becomes accessible in this menu instead of the "DISABL" parameter. After the programs which will be merged are selected with the SET button, " FINISH" parameter must be selected.



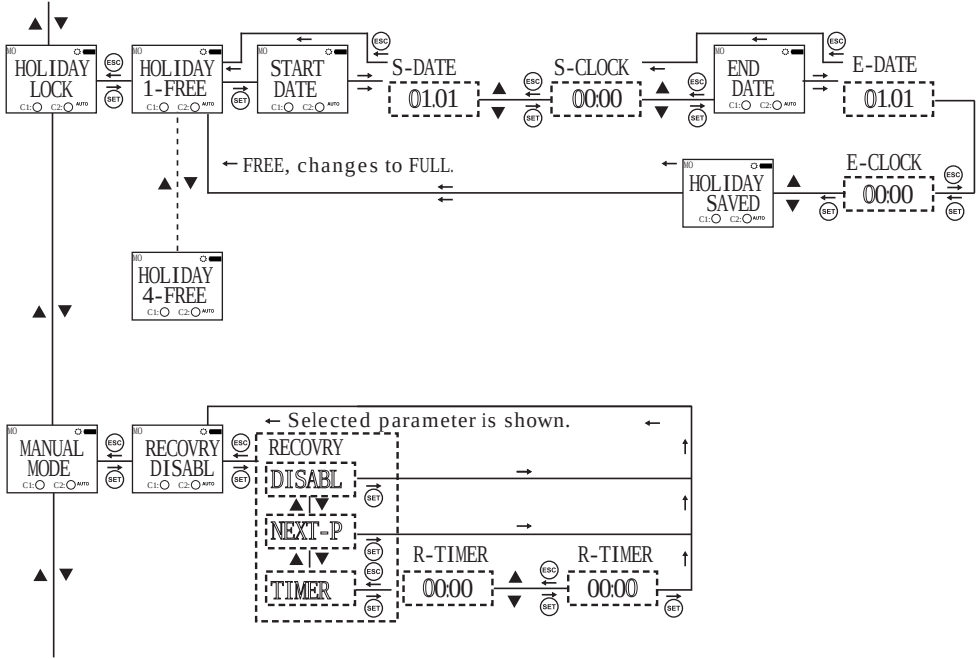


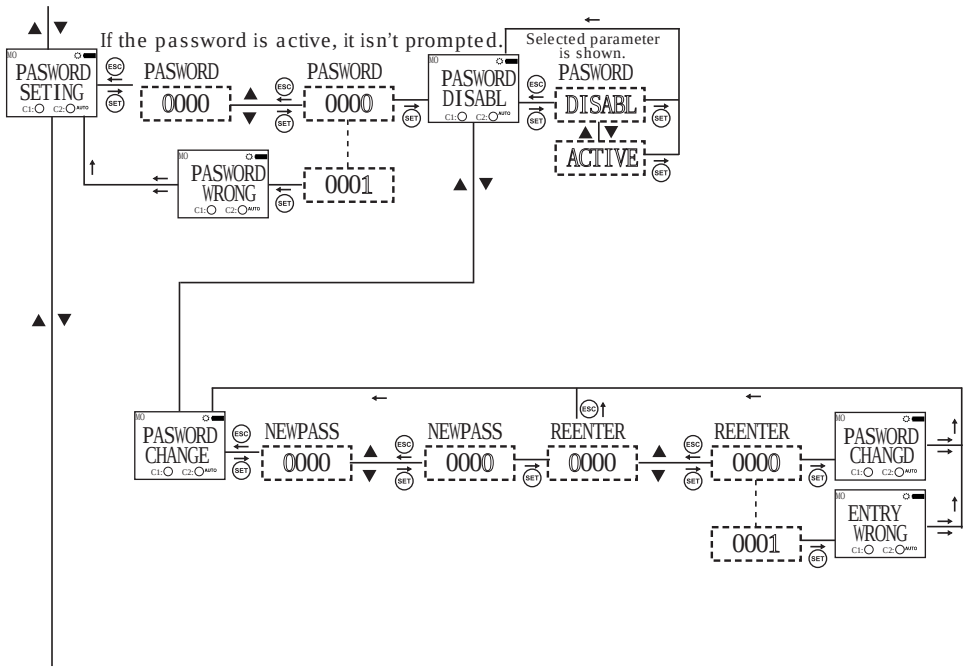

In the settings observation menu, the set parameters of the sub-menus are shown. The sub-menu titles are shown on the menu flow diagram. These parameters are shown for 3 seconds. To prolong this time; ESC, UP or DOWN buttons should be pressed. If the SET button is pressed the shown parameter changes immediately.


REGIONL SETING
LANGUAG E
DAYLIGH SAVING
DAYLIGH
CUSTOM
DISABL
europe
usa
SUMMER TIME
DST Start Time Setting
S MONTH
S WEEK
S DAY
S HOUR
january
FIRST
monday
01
decembe
LAST
sunday
23
WINTER TIME
DST Finish Time Setting
W MONTH
W WEEK
W DAY
W HOUR
january
FIRST
monday
01
decembe
LAST
sunday
23
DAYLIGH ADJSTD

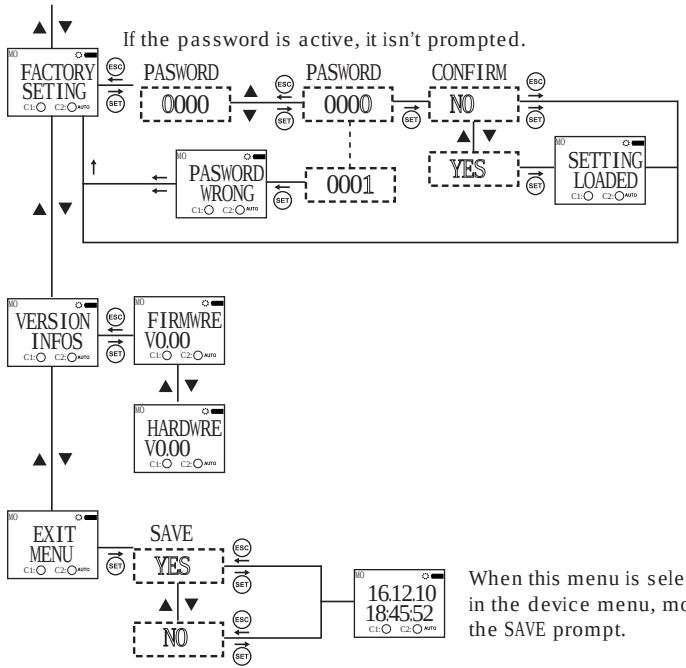

TIME SETING
DATE 13.09.10
← The last entered DATE is shown.
DATE
13.09.11
DATE
20.09.89
CHANGED DATE
CLOCK 20:53:40
← The last entered CLOCK is shown.
CLOCK
20:53:40
CLOCK
20:43:50
CHANGED CLOCK
CENTURY 2011
←The last entered CENTURY is shown.
CENTURY
13
Can be set between 19~25
CHANGED CENTURY
DISPLAY SETING
CONTRAS 08
← The last entered value is shown.
CONTRAS
08
Can be set between 00~15
CONTRAS
05




HOLIDAY LOCK
HOLIDAY 1-FREE
START DATE
S-DATE
01.01
S-CLOCK
00:00
END DATE
E-DATE
01.01
← FREE, changes to FULL.
HOLIDAY SAVED
E-CLOCK
00:00
HOLIDAY 4-FREE
MANUAL MODE
RECOVRY DISABL
← Selected parameter is shown.
RECOVRY
DISABL
NEXT-P
TIMER
R-TIMER
00:00
R-TIMER
00:00






When this menu is selecetd without making any changes in the device menu, monitoring menu is shown without the SAVE prompt.